

Dual Input, High Speed, Dual Channel Power MOSFET Driver

The EL7242/EL7252 dual input, 2-channel drivers achieve the same excellent switching performance of the EL7212 family while providing added flexibility. The 2-input logic and configuration is applicable to numerous power MOSFET drive circuits. As with other Elantec drivers, the EL7242/EL7252 are excellent for driving large capacitive loads with minimal delay and switching times. "Shoot-thru" protection and latching circuits can be implemented by simply "cross-coupling" the 2-channels.

Ordering Information

PART NUMBER	PACKAGE	TAPE & REEL	PKG. DWG. #
EL7242CN	8-Pin PDIP	-	MDP0031
EL7242CS	8-Pin SOIC	-	MDP0027
EL7242CS-T7	8-Pin SOIC	7"	MDP0027
EL7242CS-T13	8-Pin SOIC	13"	MDP0027
EL7242CSZ (See Note)	8-Pin SOIC (Pb-free)	-	MDP0027
EL7242CSZ-T7 (See Note)	8-Pin SOIC (Pb-free)	7"	MDP0027
EL7242CSZ-T13 (See Note)	8-Pin SOIC (Pb-free)	13"	MDP0027
EL7252CN	8-Pin PDIP	-	MDP0031
EL7252CS	8-Pin SOIC	-	MDP0027
EL7252CS-T7	8-Pin SOIC	7"	MDP0027
EL7252CS-T13	8-Pin SOIC	13"	MDP0027
EL7252CSZ (See Note)	8-Pin SOIC (Pb-free)	-	MDP0027
EL7252CSZ-T7 (See Note)	8-Pin SOIC (Pb-free)	7"	MDP0027
EL7252CSZ-T13 (See Note)	8-Pin SOIC (Pb-free)	13"	MDP0027

NOTE: Intersil Pb-free products employ special Pb-free material sets; molding compounds/die attach materials and 100% matte tin plate termination finish, which are RoHS compliant and compatible with both SnPb and Pb-free soldering operations. Intersil Pb-free products are MSL classified at Pb-free peak reflow temperatures that meet or exceed the Pb-free requirements of IPC/JEDEC J STD-020.

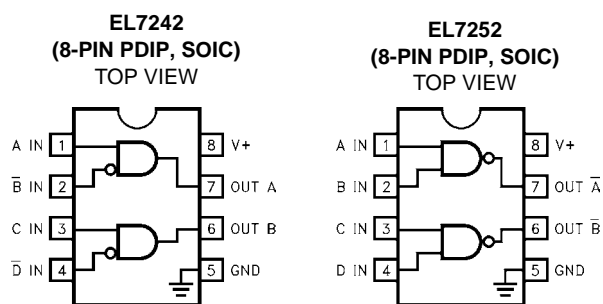
Features

- Logic AND/NAND input
- 3V and 5V Input compatible
- Clocking speeds up to 10MHz
- 20ns Switching/delay time
- 2A Peak drive
- Isolated drains
- Low output impedance
- Low quiescent current
- Wide operating voltage — 4.5V/16V
- Pb-Free available (RoHS compliant)

Applications

- Short circuit protected switching
- Under-voltage shut-down circuits
- Switch-mode power supplies
- Motor controls
- Power MOSFET switching
- Switching capacitive loads
- Shoot-thru protection
- Latching drivers

Pinouts



Manufactured under U.S. Patent Nos. 5,334,883, #5,341,047

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Supply (V_+ to Gnd) 16.5V
 Input Pins -0.3V to +0.3V above V_+
 Combined Peak Output Current4A
 Storage Temperature Range -65°C to +150°C

Ambient Operating Temperature -40°C to +85°C
 Operating Junction Temperature 125°C
 Power Dissipation
 SOIC570mW
 PDIP1050mW

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress only rating and operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied.

IMPORTANT NOTE: All parameters having Min/Max specifications are guaranteed. Typical values are for information purposes only. Unless otherwise noted, all tests are at the specified temperature and are pulsed tests, therefore: $T_J = T_C = T_A$

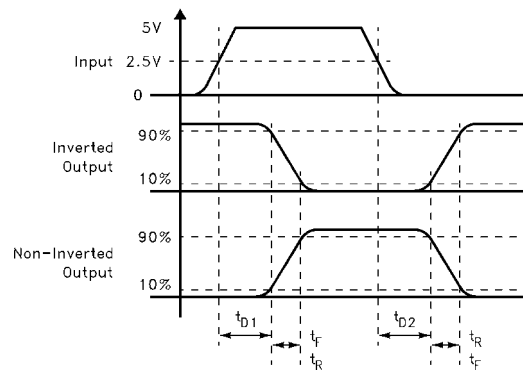
DC Electrical Specifications $T_A = 25^\circ\text{C}$, $V = 15\text{V}$ unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
INPUT						
V_{IH}	Logic "1" Input Voltage		2.4			V
I_{IH}	Logic "1" Input Current	@ V_+		0.1	10	μA
V_{IL}	Logic "0" Input Voltage				0.8	V
I_{IL}	Logic "0" Input Current	@0V		0.1	10	μA
V_{HVS}	Input Hysteresis			0.3		V
OUTPUT						
R_{OH}	Pull-Up Resistance	$I_{OUT} = -100\text{mA}$		3	6	Ω
R_{OL}	Pull-Down Resistance	$I_{OUT} = +100\text{mA}$		4	6	Ω
I_{PK}	Peak Output Current	Source Sink		2 2		A
I_{DC}	Continuous Output Current	Source/Sink	100			mA
POWER SUPPLY						
I_S	Power Supply Current	Inputs High		1	2.5	mA
V_S	Operating Voltage		4.5		16	V

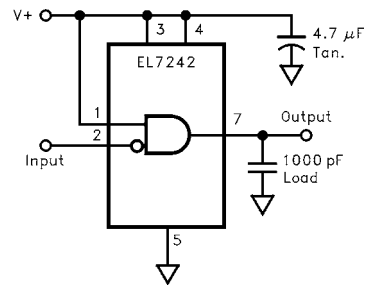
AC Electrical Specifications $T_A = 25^\circ\text{C}$, $V = 15\text{V}$ unless otherwise specified

PARAMETER	DESCRIPTION	TEST CONDITIONS	MIN	TYP	MAX	UNITS
SWITCHING CHARACTERISTICS						
t_R	Rise Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$			10 20	ns
t_F	Fall Time	$C_L = 500\text{pF}$ $C_L = 1000\text{pF}$			10 20	ns
t_{D-ON}	Turn-On Delay Time			20	25	ns
t_{D-OFF}	Turn-Off Delay Time			20	25	ns

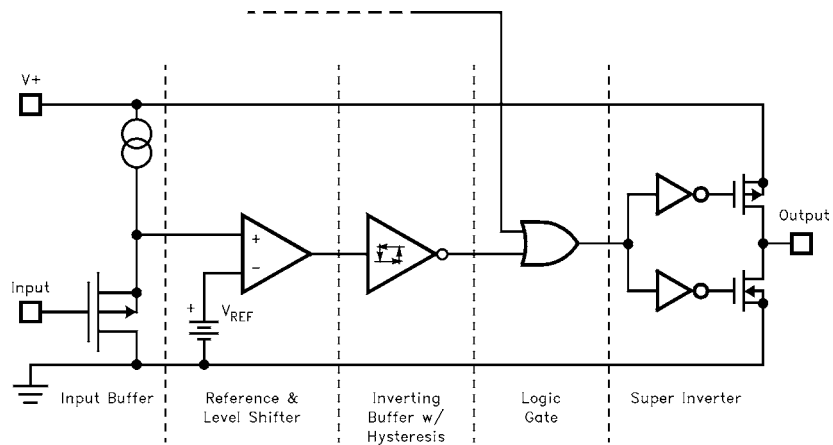
Timing Table



Standard Test Configuration

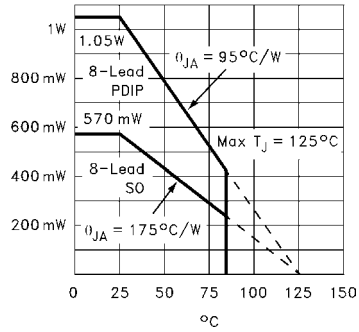


Simplified Schematic

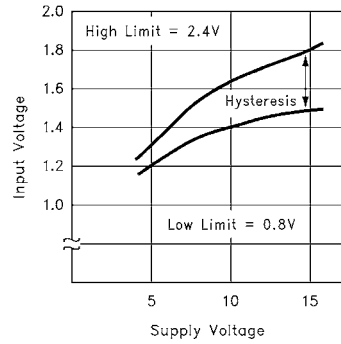


Typical Performance Curves

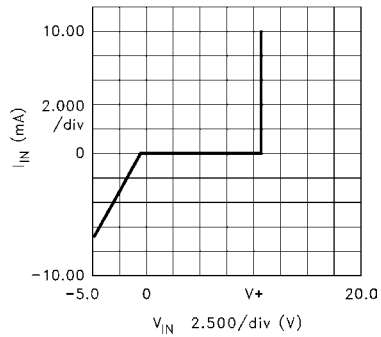
Max Power/Derating Curves



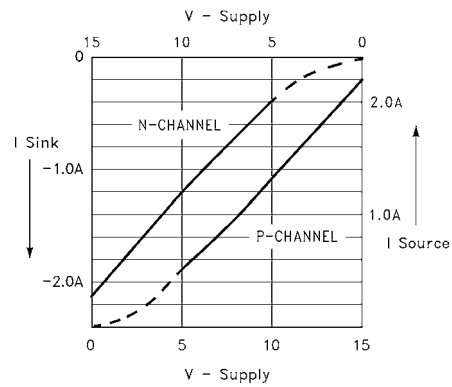
Switch Threshold vs Supply Voltage



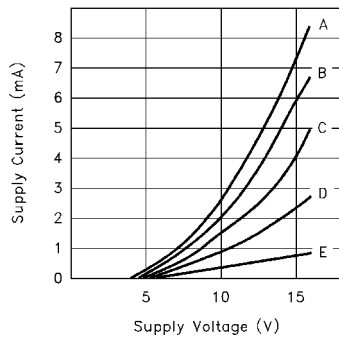
Input Current vs Voltage



Peak Drive vs Supply Voltage



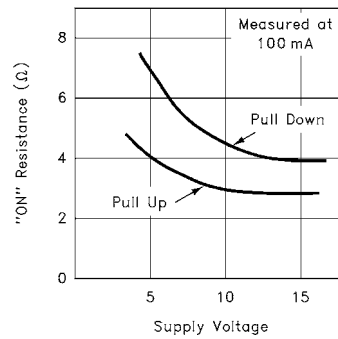
Quiescent Supply Current



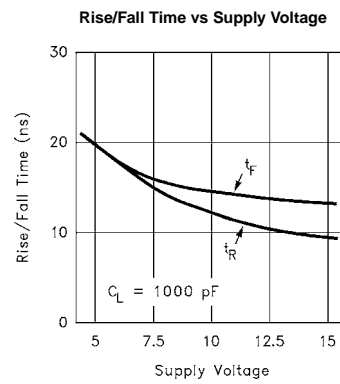
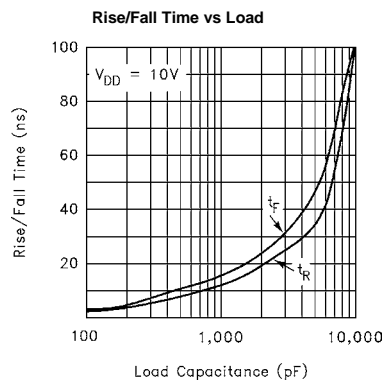
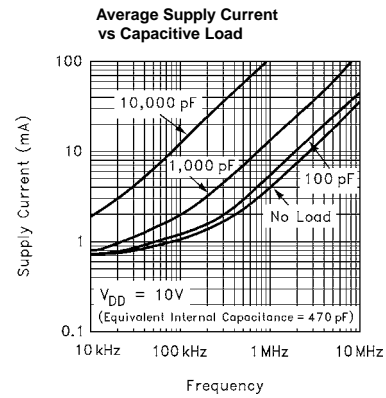
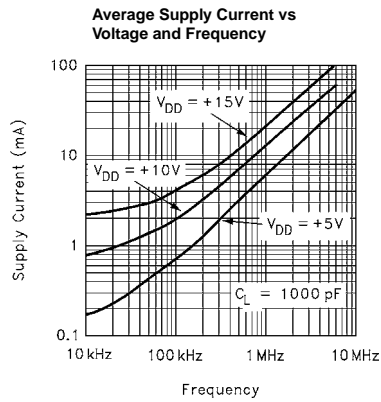
CASE:

A	ALL INPUTS GND
B	3 INPUTS GND
C	2 INPUTS GND
D	1 INPUT GND
E	ALL INPUTS V_{+}

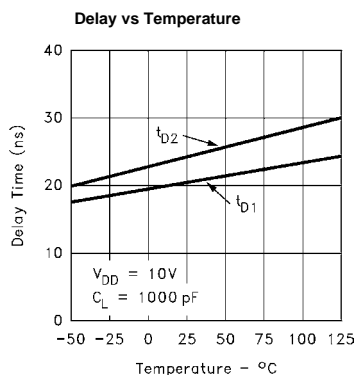
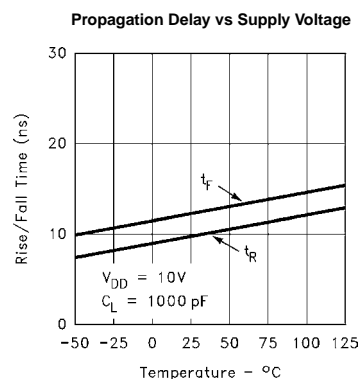
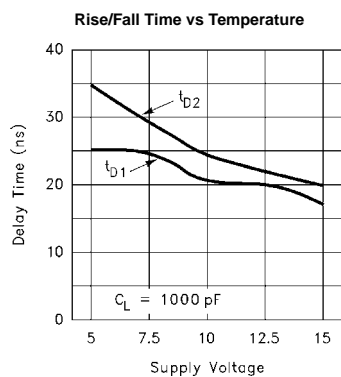
"ON" Resistance vs Supply Voltage



Typical Performance Curves (Continued)



Typical Performance Curves (Continued)



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